

Presentation of Digital Design Projects

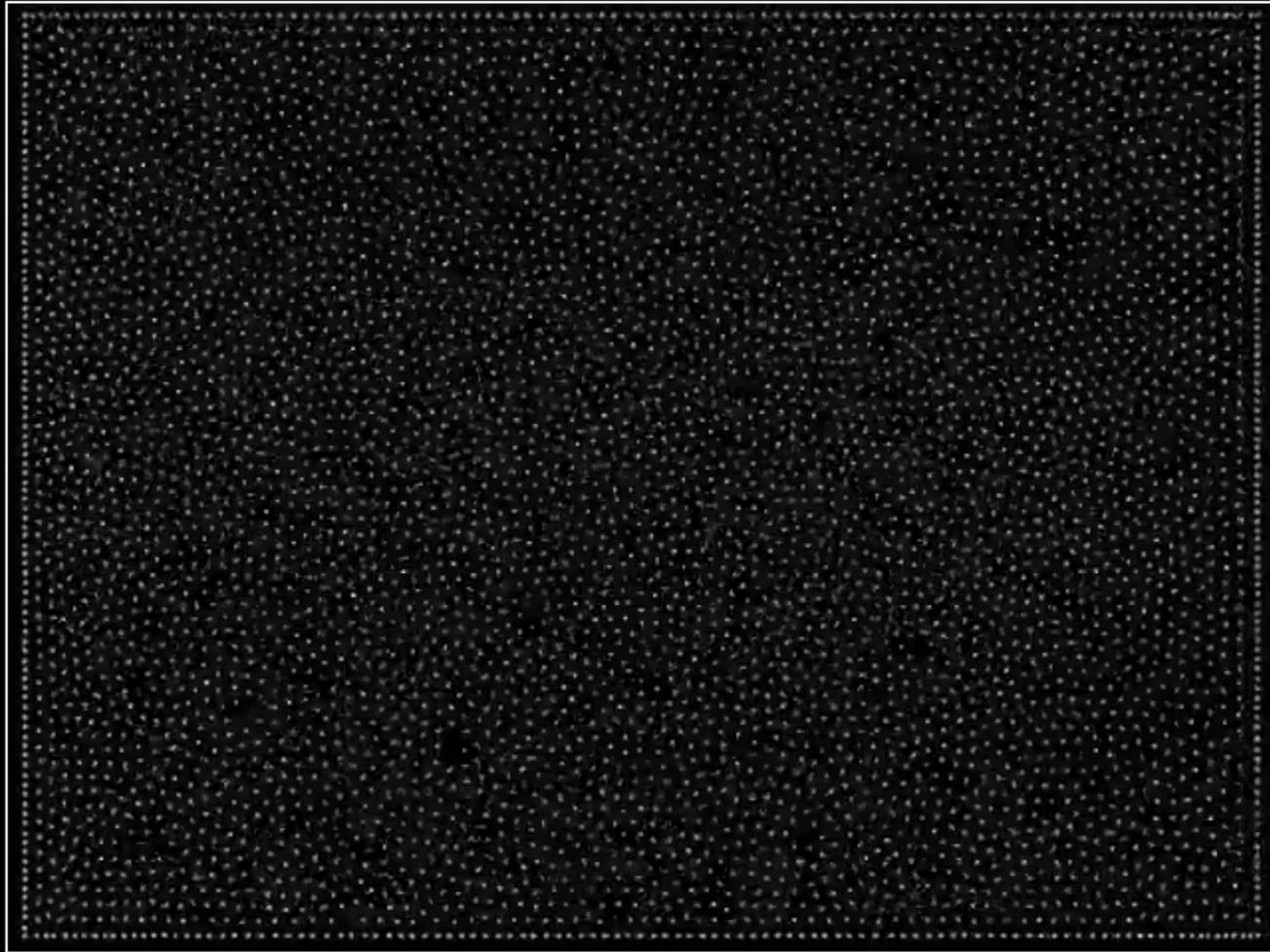
Projects created and produced by Jean-Marc Gauthier

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The Sound of the City

Virtual city viewed in real-time. The camera moves according to the viewer's voice.



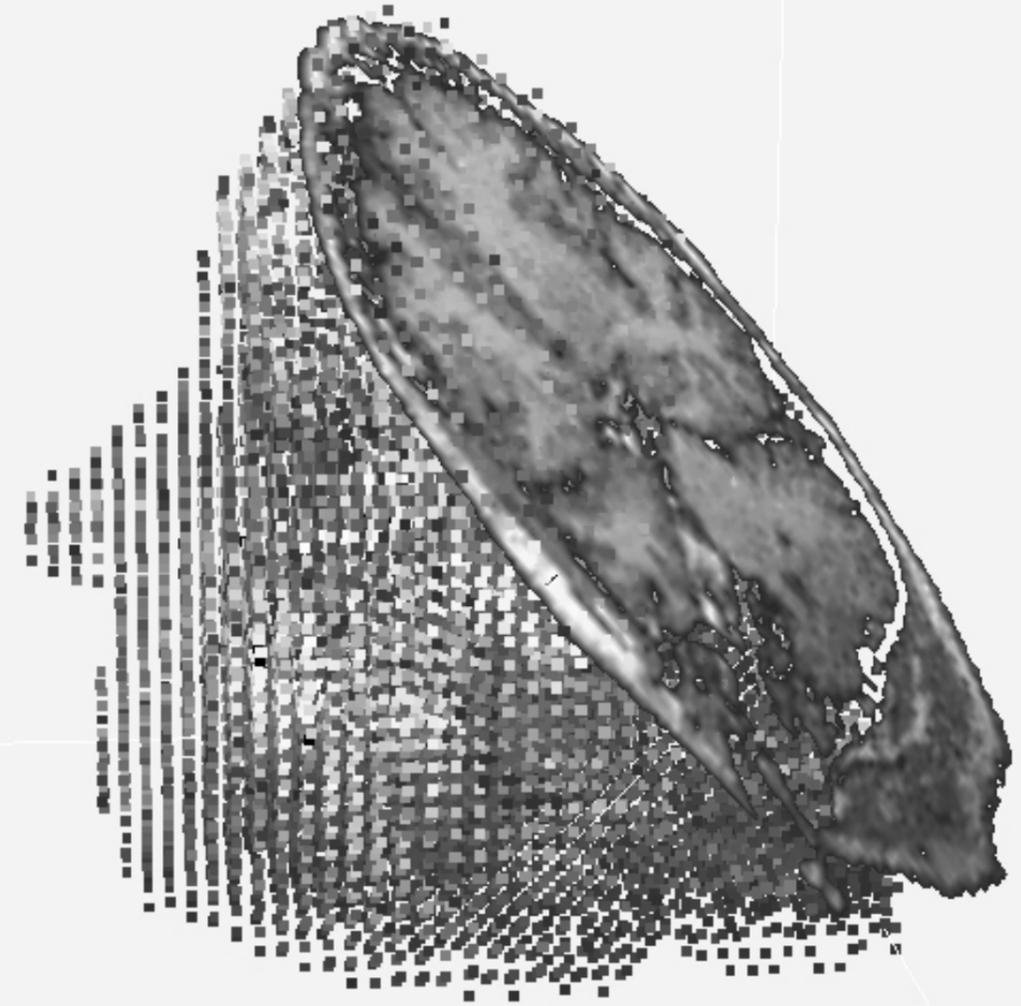
[Click on the image to watch the video](#)

Dust

3D animation transferred to 35mm film

Created for Melvin Motti's installation "From Dust to Dust"

[Link to the website](#)



[Click on the image to watch the video](#)

The Brain Project

Interactive navigation inside the brain

This interactive visualization is designed for a neurosurgeon in the operating room. The viewer can navigate the virtual brain in any direction using head movements regardless of the orientation of the original slices of the MRI.

A web browser allows 3D navigation inside a brain using a cloud of voxels, or pixels located in space. Since the images of the brain are displayed in space, they can be visited from many angles, including new angles that could not be viewed in the original pictures.

[Link to the website tinkering.net/brain/](http://tinkering.net/brain/)

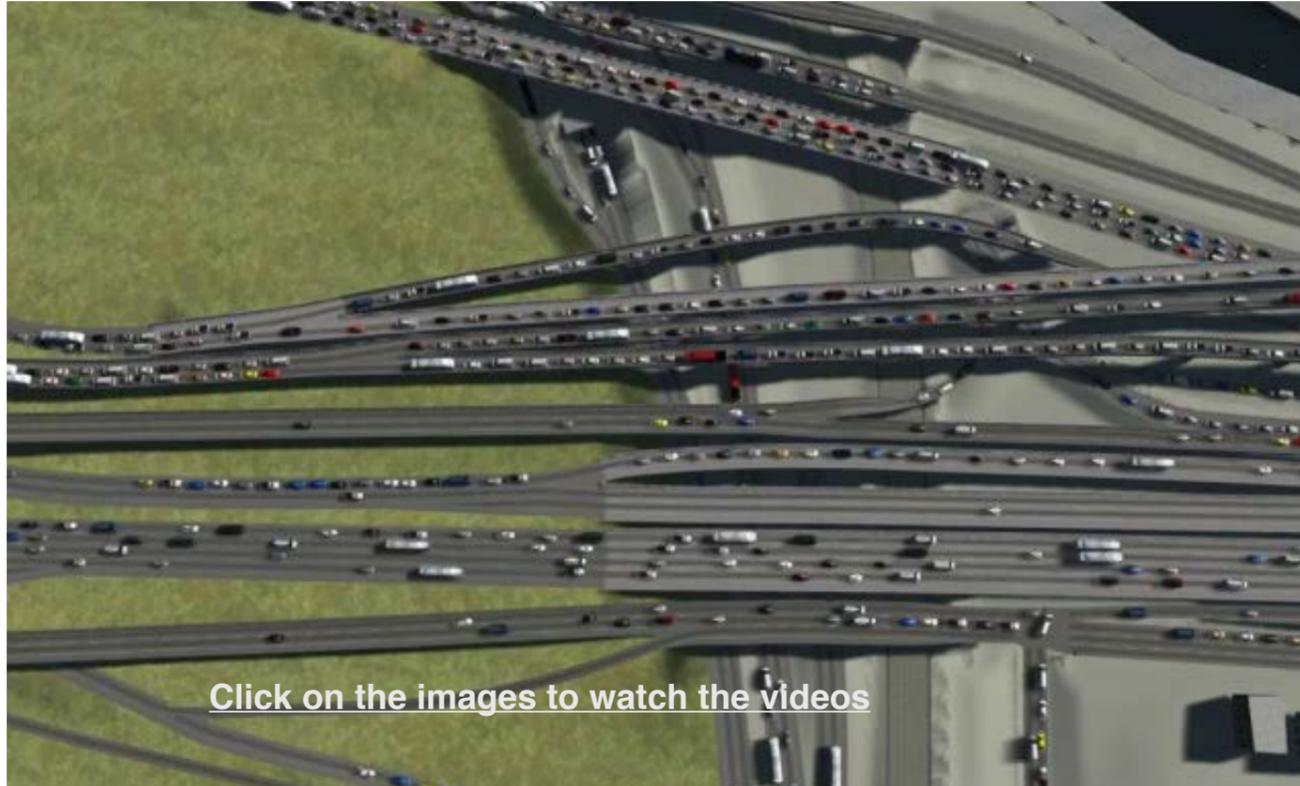
Interactive Urban Simulator Jean-Marc Gauthier

3D map with dynamic behaviours = a traffic simulator

Brief: Show me the traffic in real time

Goal: Finding information using a dynamic 3D map

Design: An interactive camera shows a global view of the traffic during a 24 hour period.



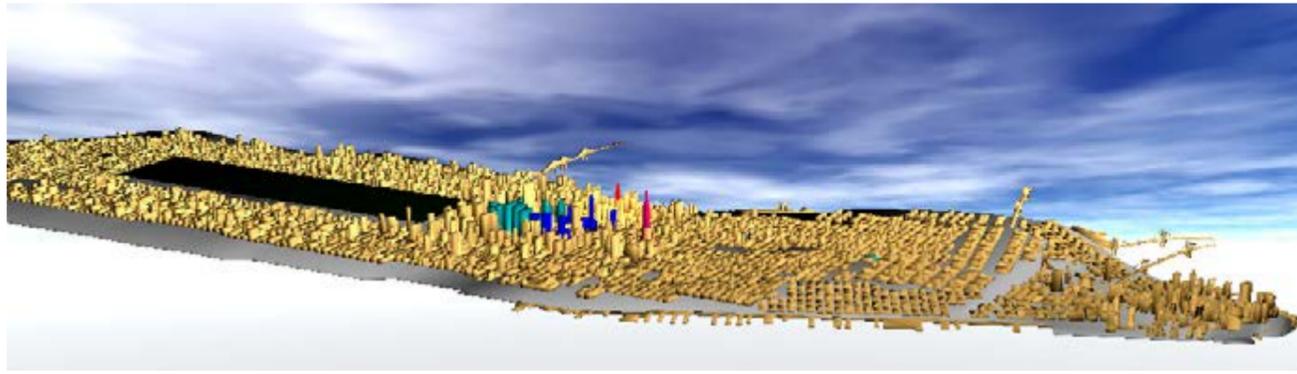
The goal of the installation is to present a digital road and a connected car that send messages and display information when pedestrians are in the vicinity of the car. The surface of the road and some of the car body panels display real time visual communication between pedestrians and the connected vehicle.



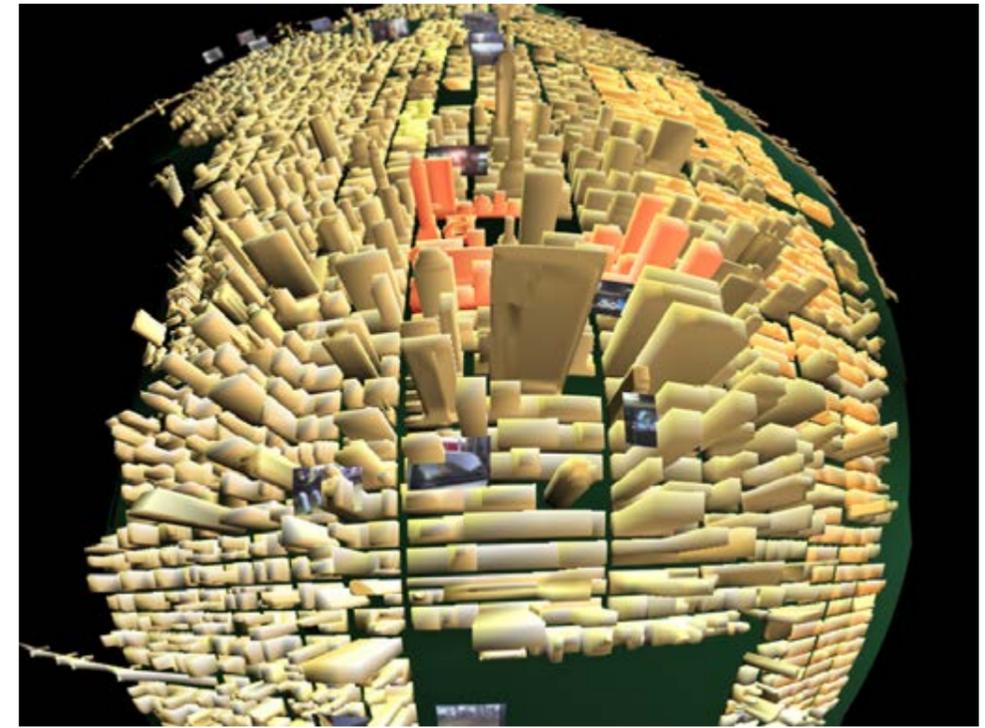
Interactive installation for connected cars

The connected car project is an interactive installation showing a car that reacts to the presence of pedestrians. The connected car and the visitors of the installation are on top of a digital floor that reacts in real time with visuals and sounds when they walk towards the car.

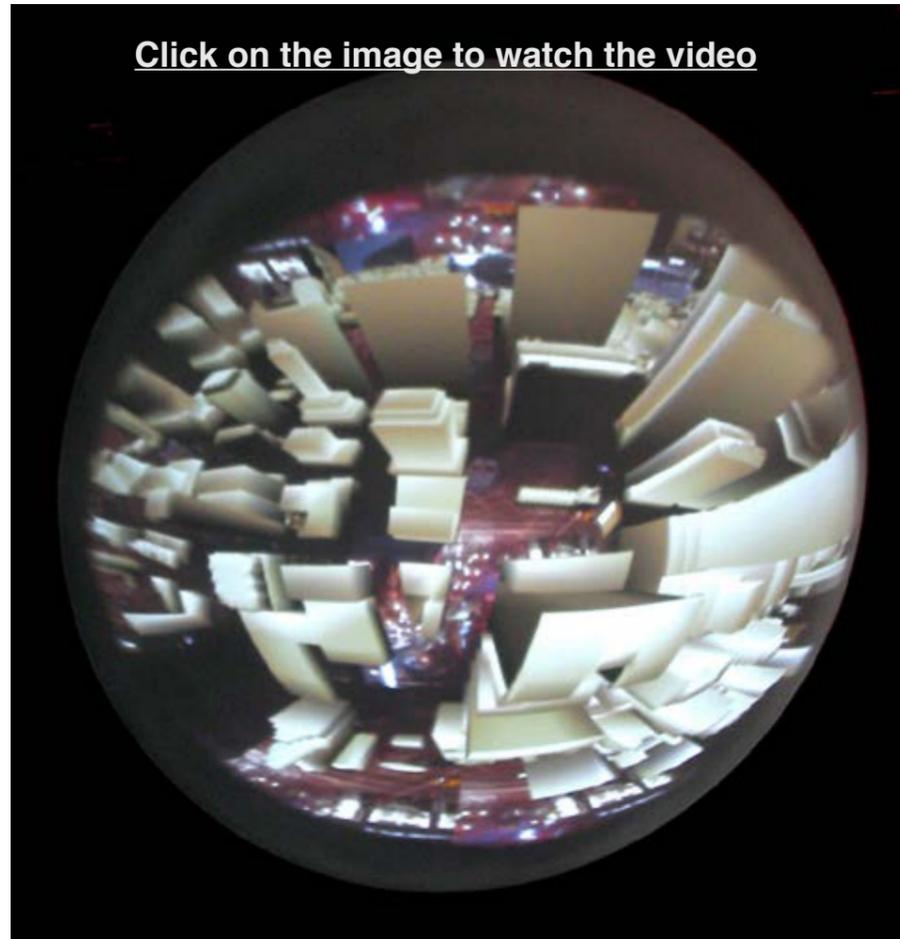
This ongoing project offers an interactive experience of a car(s) connected to pedestrians and the space around them. What about a connected car that reacts to people and to its environment?



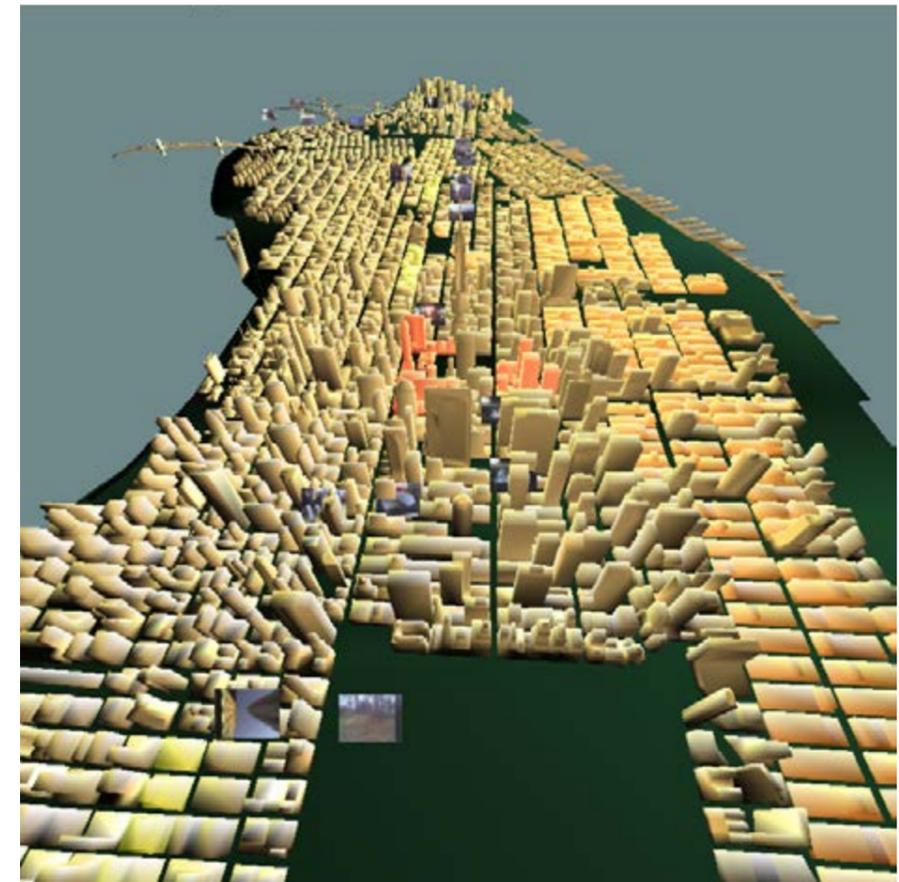
On top, this is the 3D model of Manhattan used for this project. All the spherical projections were done in camera and in real-time. The viewer can navigate inside a 3D map of Manhattan (New York) without the need to scroll the map. The background of the map is made of personal pictures stored on the phone.



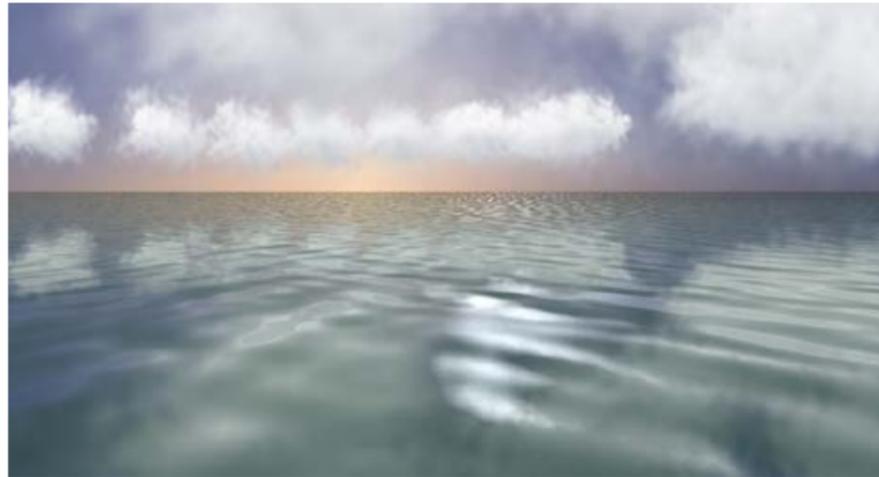
City viewed through a spherical virtual camera



3D map for smartphones Interactive installations at FMX Stuttgart (Germany), Daegu (South Korea)



3D map for smartphones Interactive installations at FMX Stuttgart (Germany), Daegu (South Korea)



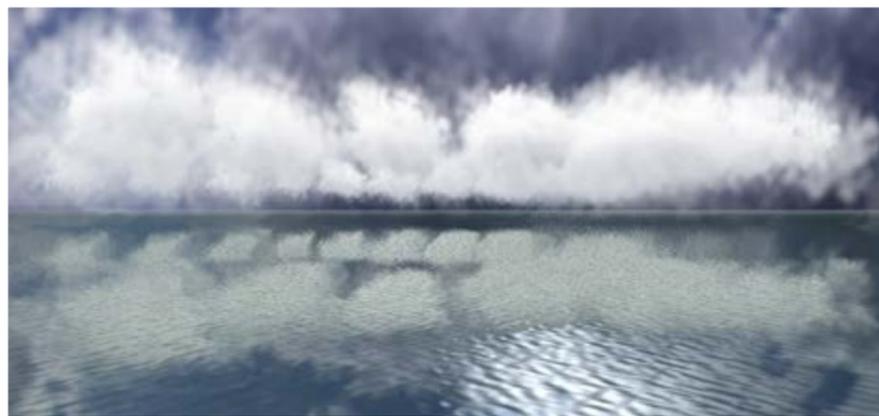
0 s



20 s



40 s



60 s

Lake

Procedural animation and visualization project

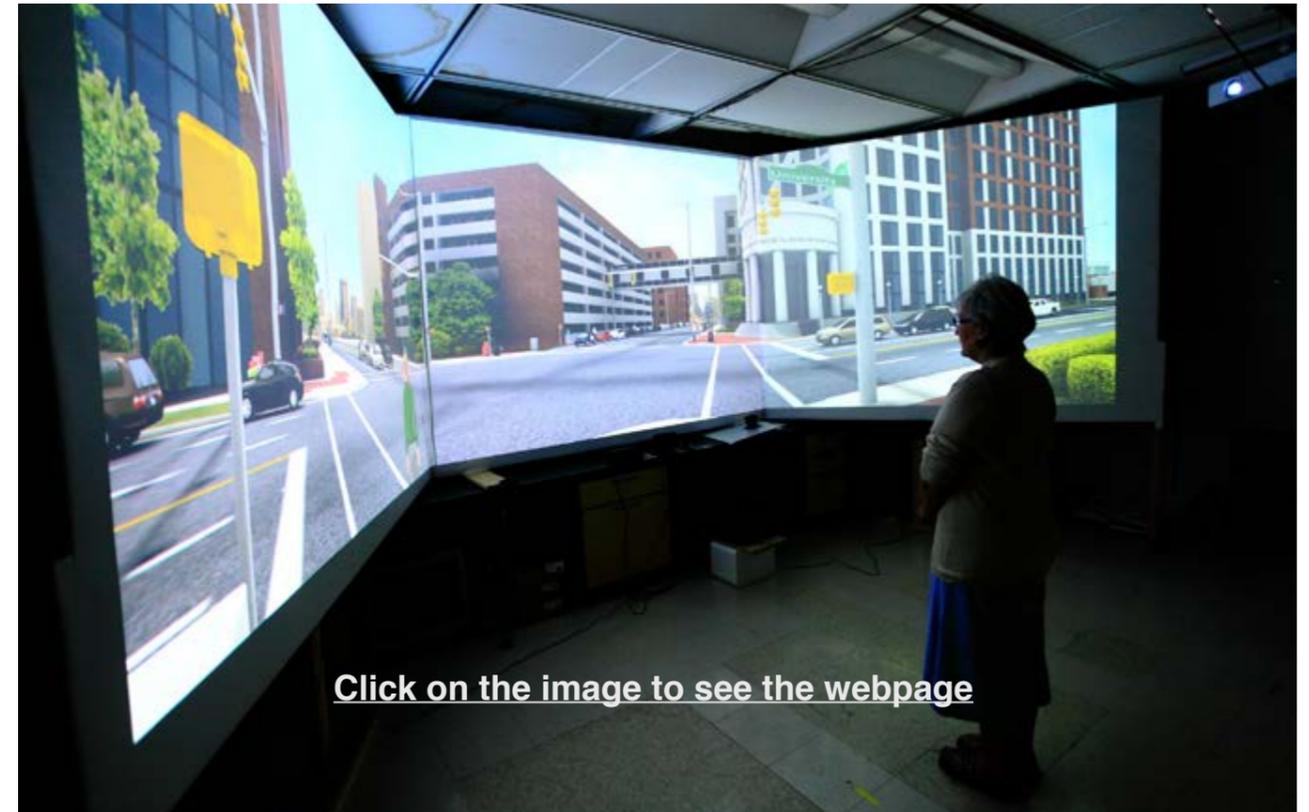
Procedural animations recreate a digital painting of a lake with atmospheric effects: clouds, waves and reflections. The painting changes according to the data received from live video and the web.

Crosswalk

Joint project with Dr Lei Liu

Client: Lei Liu, Phd, UAB- Vision Science Research Center, University of Alabama, USA

More at <http://www.tinkering.net/portfolio2014/page2/index5.html>



[Click on the image to see the webpage](#)

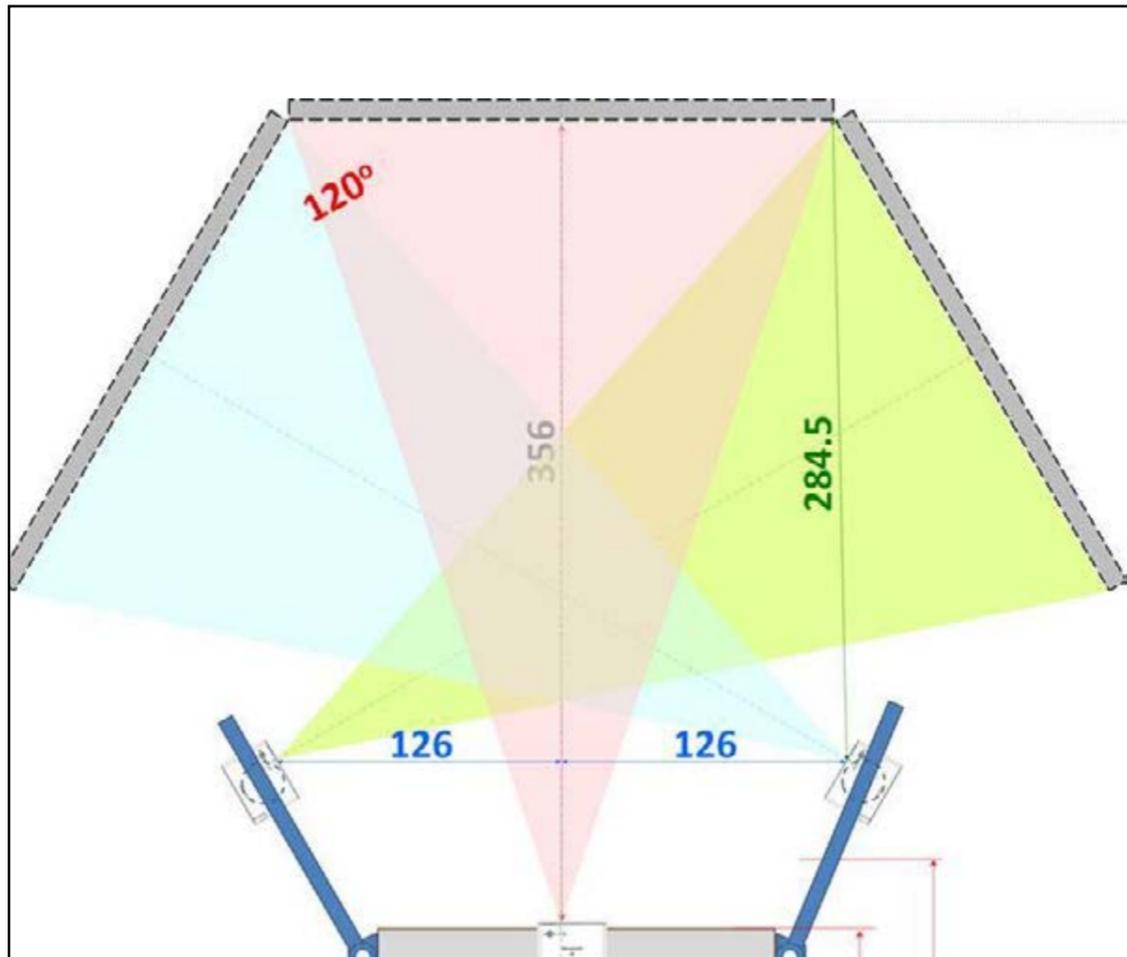
What they wrote: Testimonial from Professor Lei Liu, PhD

“We credit our success to the high-quality and excellent performance of the virtual reality simulator and street intersection scenarios that you built.

The virtual reality simulator and street intersection scenarios have the high visual resolution, wide field of view and high contrast we need. The car and pedestrian traffic is very smooth and traffic rules are strictly followed.

The street intersections are true 3D models, which allow us to set up a wide range of street crossing scenarios by moving the virtual cameras around.

This is a very powerful research tool, an envy of many of my fellow researchers.”



Top view of the installation showing the projectors and the screen. This display will provide a front and peripheral vision which are accurate for the viewer.

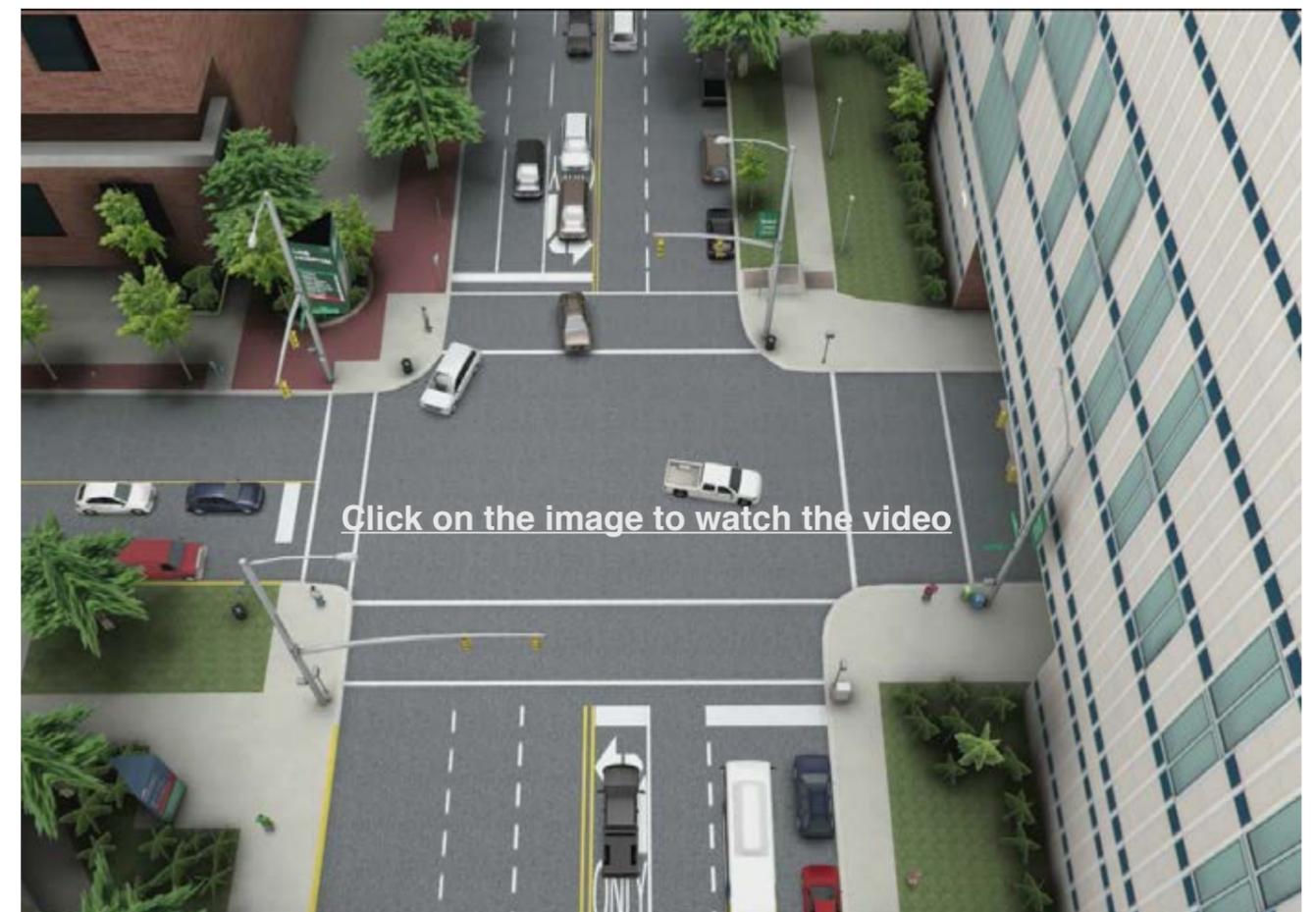
The display is a very important part of the viewers experience of an installation. **Crosswalk** uses an immersive 3 screens display technology that allows seamless visuals between the screens. This is an important element of suspension of disbelief for the viewer or the user.

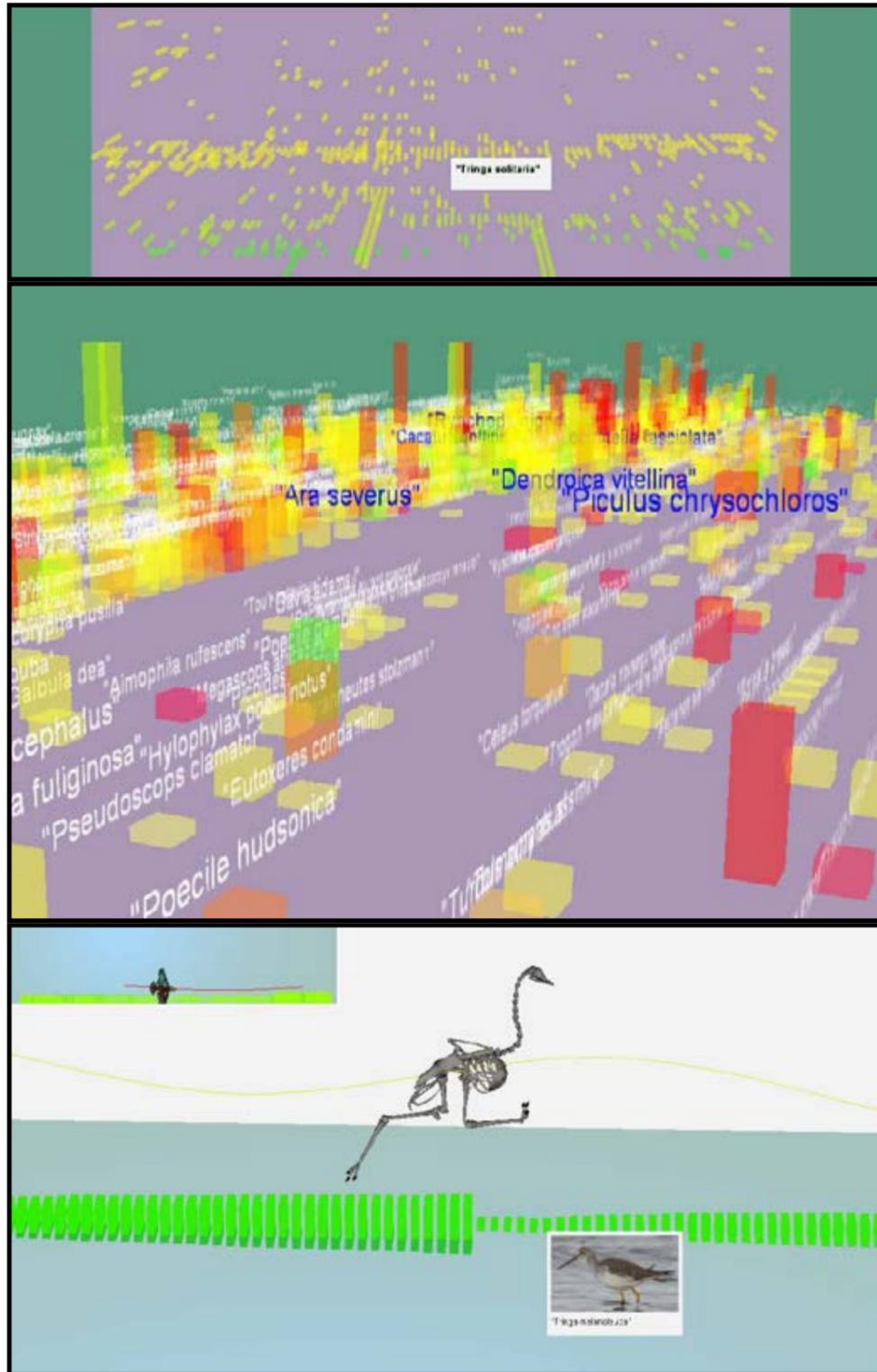
The visuals on the 3 screens are captured by a node of three virtual cameras located inside the virtual world. The virtual cameras are centered on the user standing inside the physical space. The main innovation has been to achieve a 15 ms synchronization between moving images of the cars and the moving sound nodes attached to the engines of the cars.

In the case of **Crosswalk**, the simulator is designed to be operated by anyone. It has a visual user interface, a menu, which allows to make choices and to change the parameters of the scene. It can save a user profile in order to repeat a session. The maintenance was done remotely.

We designed a robust system that does not break during long sessions with many different users. We designed a custom built single PC with several video cards that could manage all the screens and the sound. This was created in order to cut latency and to improve the overall speed of the whole system. In other words, we were interested in the speed of the whole system from the point of view of the viewer's eyes and ears. This may be much slower than the speed of the hardware because of long wiring, the refresh speed of the video projector, the location of speakers in the room.

We chose a system that allowed to develop one version of the content that could be used on various media: web browser/tablet based application, in addition to the simulator.





Birds Project

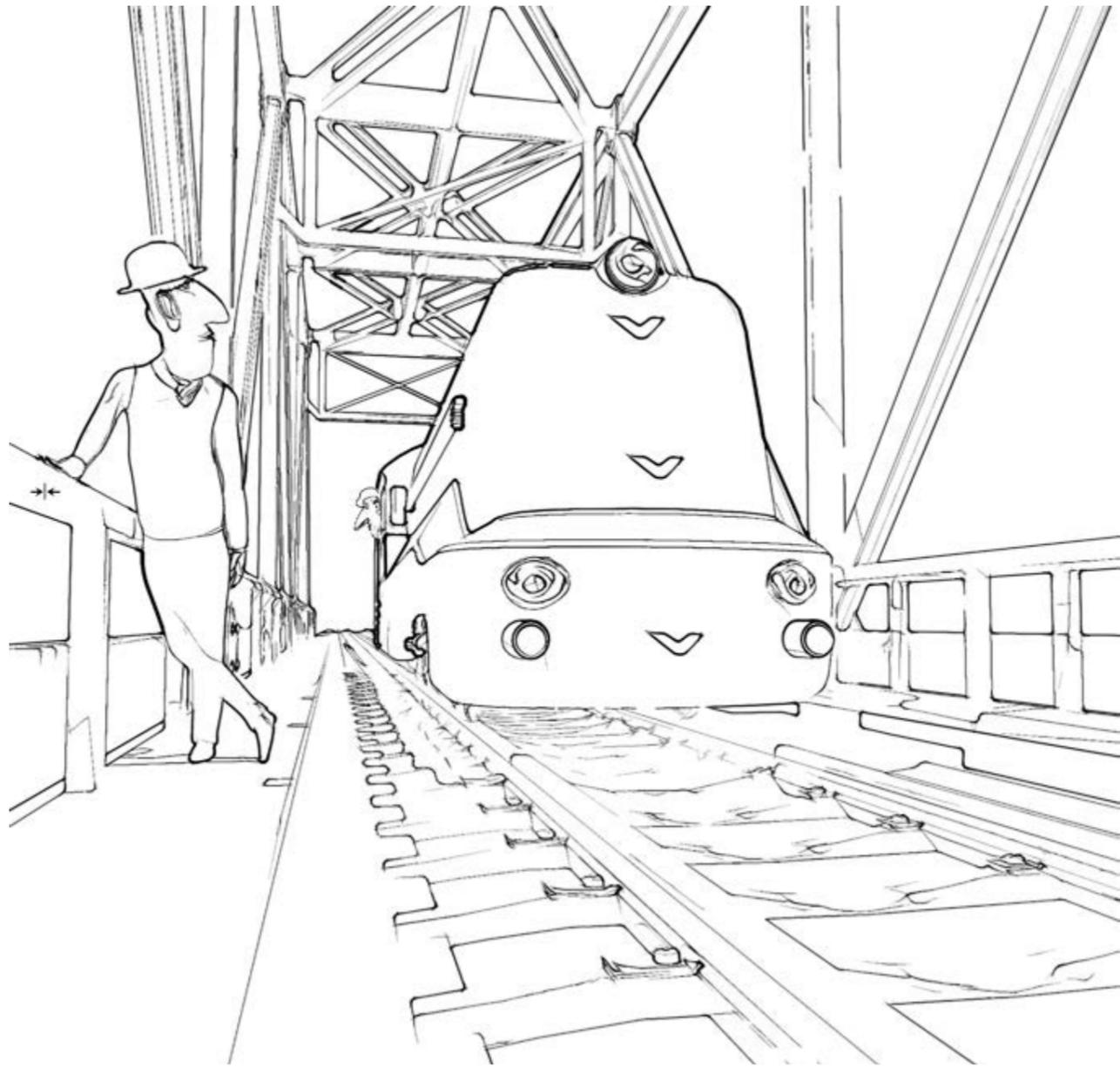
Jean-Marc Gauthier and Mark Young Stoeckle from The Barcode of Life project, The Rockefeller University, created a 3D interactive visualization tool showing world bird species in 27 orders. The visualization includes names, texts, pictures, 3D models and animations. [Link to the website.](#)



ITP website

Web design and code

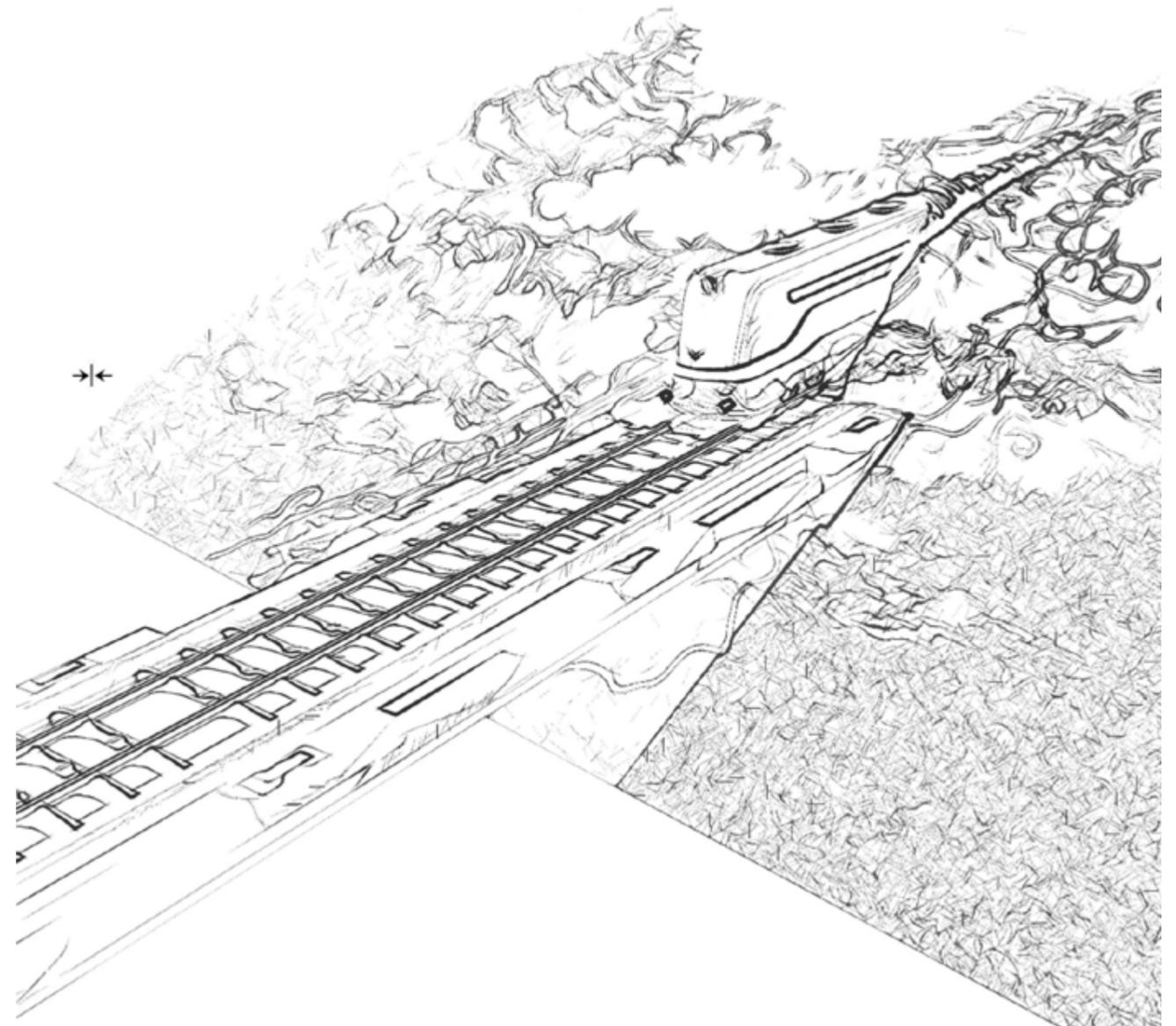
Tisch School of the Arts, New York City.



BeCity
Illustrations for a children book and animations

“Be City” is an animation and transmedia project selected by the festival “Anthropologie Numerique 2014”, France. The adaptation of the story includes a traditional children’s book, an app with interactive illustrations and short animations on the web.

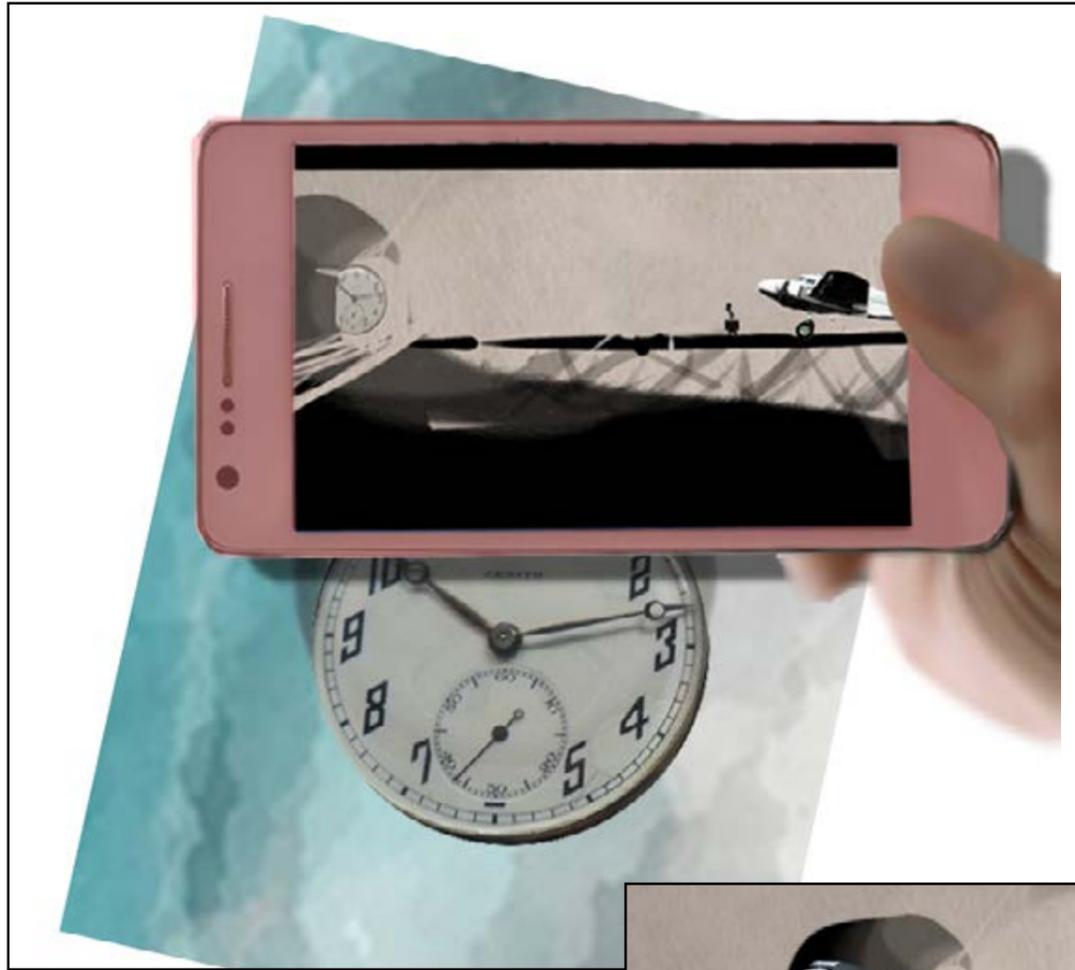
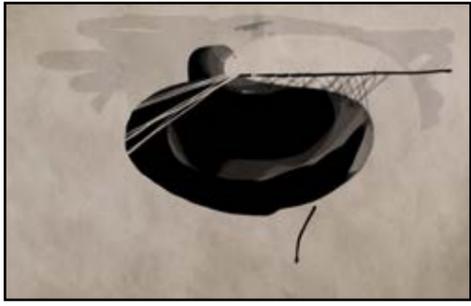
[Click on this image to view the website](#)



[Link to the interactive illustrations](#)

[Click on this image to view the animation](#)



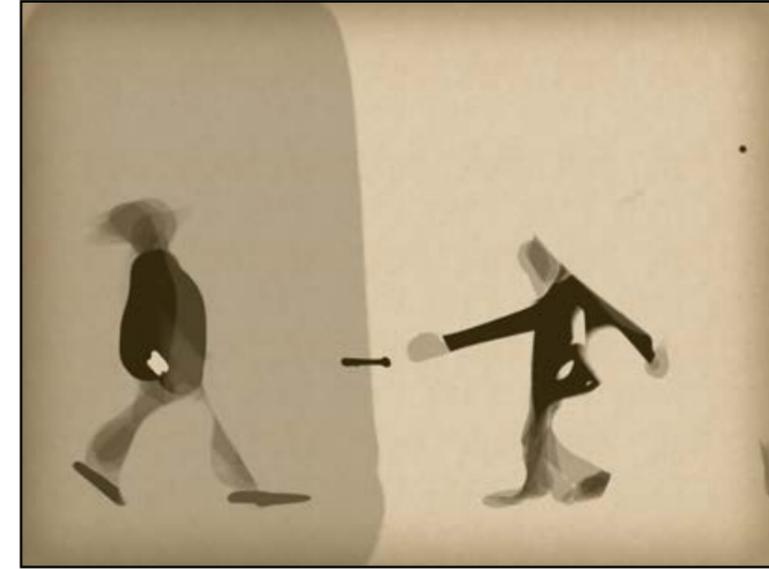


[Click on this image to view the web animation](#)

BeCity

Illustrations for a children book, app and animations

Readers can use the app to associate pictures of the book with animations stored on the device.



[Click on this image for the interactive scenes in 1937 Berlin](#)

Scenes of the journey back in time to 1937 Berlin.

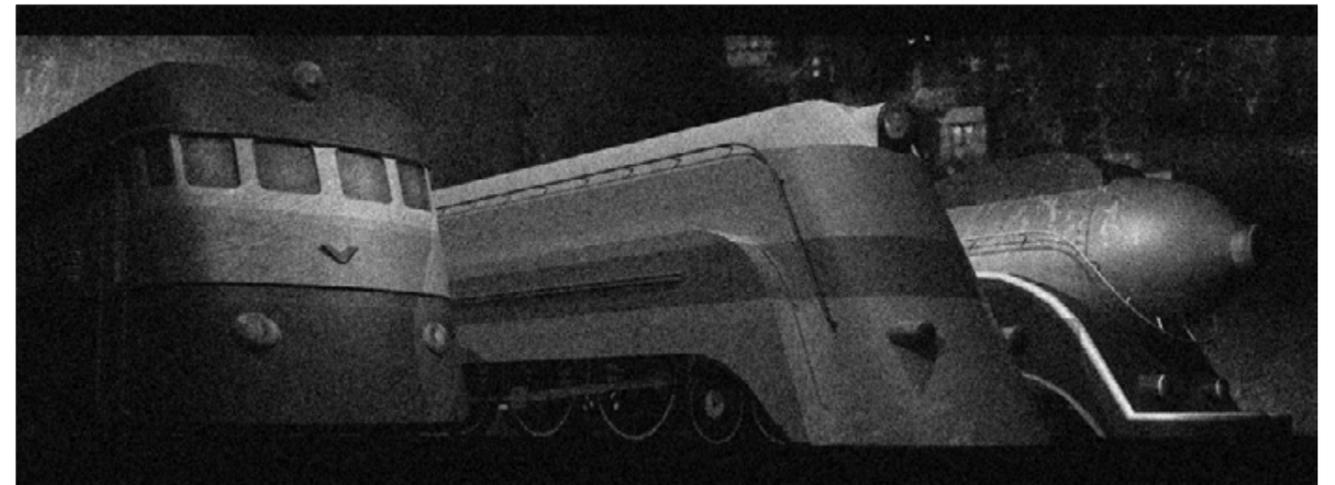
The bottom picture shows the compositing of a 3D character on top of the hand drawn illustration.



[Click on this image to view the web animation](#)

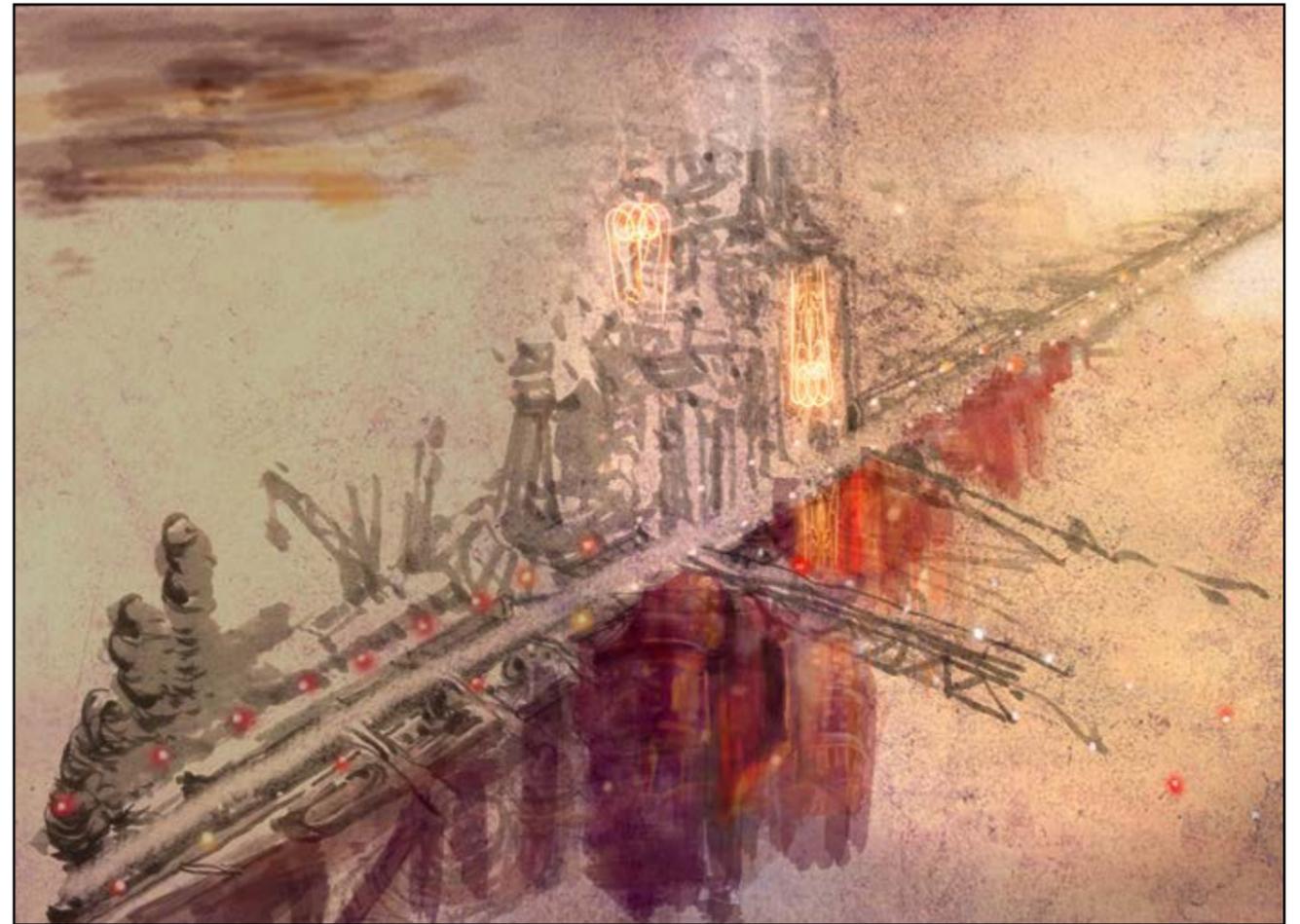


The outdoor scenes combine the look and feel of a sketchbook, watercolor drawings and renderings of 3D models designed for the time travel expedition.



The time travel scenes use a cinematic look and feel and lighting inspired by film noir.

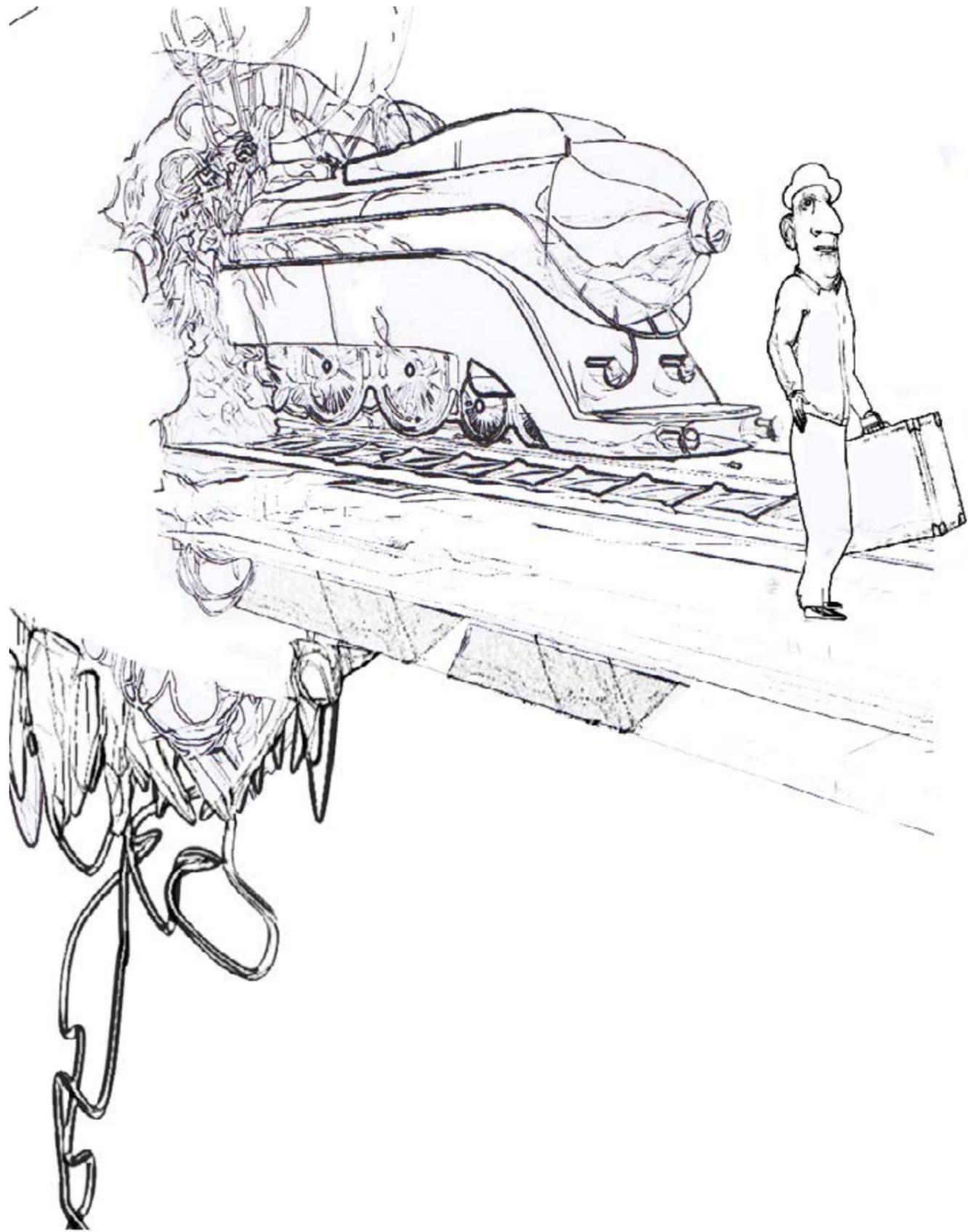




BeCity
Illustrations for a children book, app and animations

On the top, digital oil paint brushes and 3D print.

On the right, digital oil paint brushes were used for the renderings of the city.



BeCity
Character design

Ink pen
[Link to the interactive illustrations](#)



3D print



Rendering and post-production



3D print



rendering of 3D model with painted texture digital watercolor



Hommage a Jean-Claude Forest,
Digital markers, tablet, Procreate



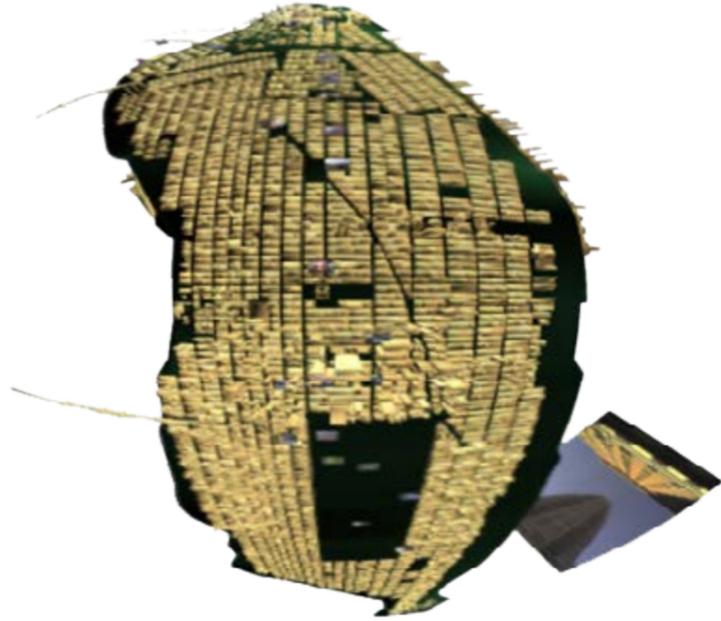
**Personal research
Character Design**
Crayon Conte

3D map for mobile phones

Request: "Show me Bryant Park."

Answer comes in three interactive steps.

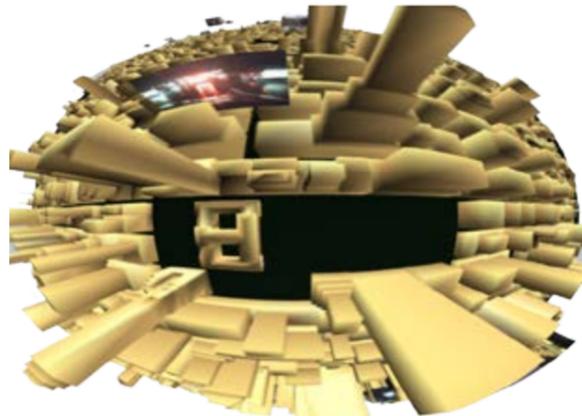
1. Refers to a collective memory of the shape of the city.



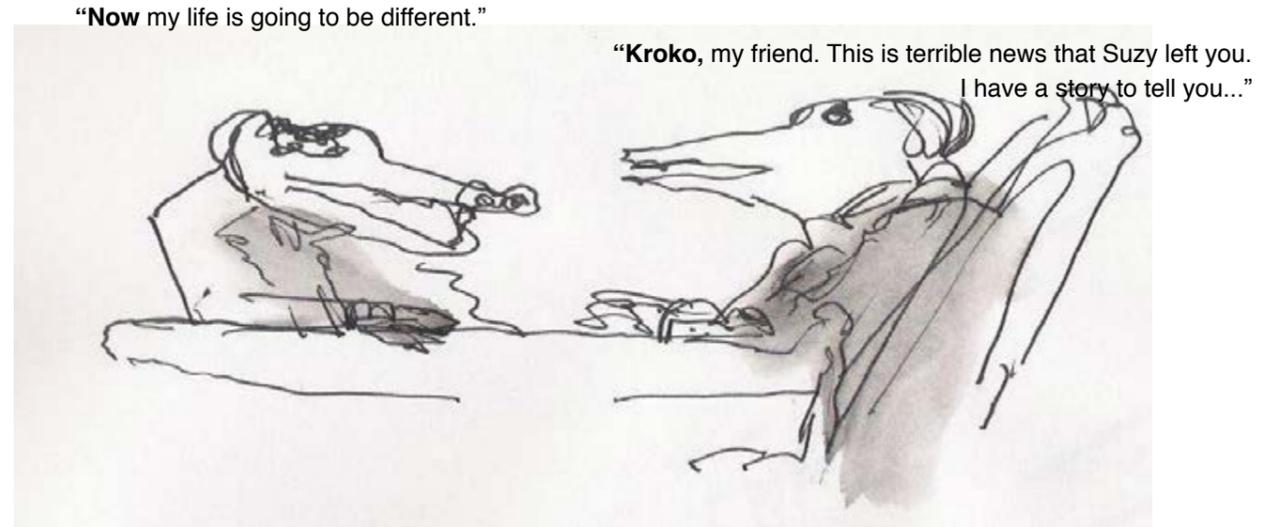
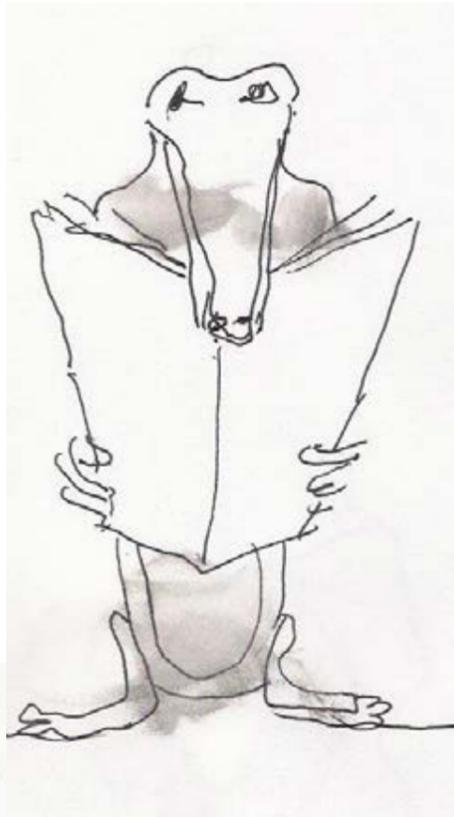
2. Reduce Urban Complexity



3. A personal interactive experience

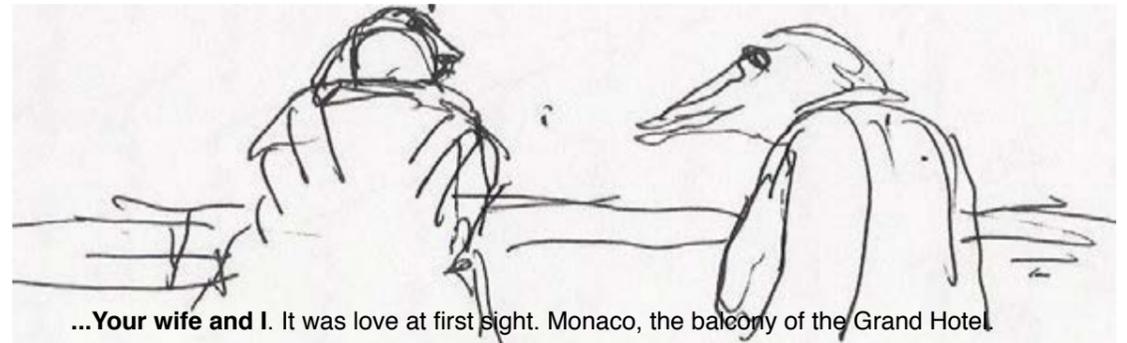


Infinite City Virtual reality installation with J. Tunick and M. Kirov, Convergence, Chelsea Art Museum, NYC, USA

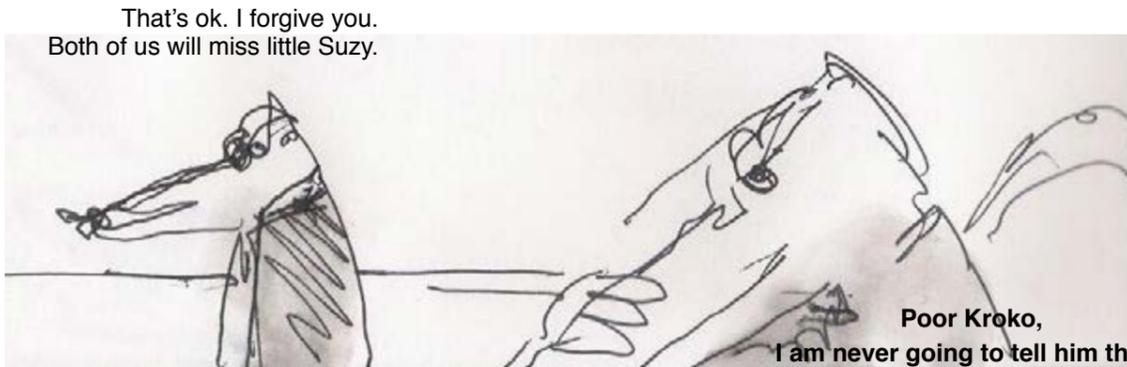
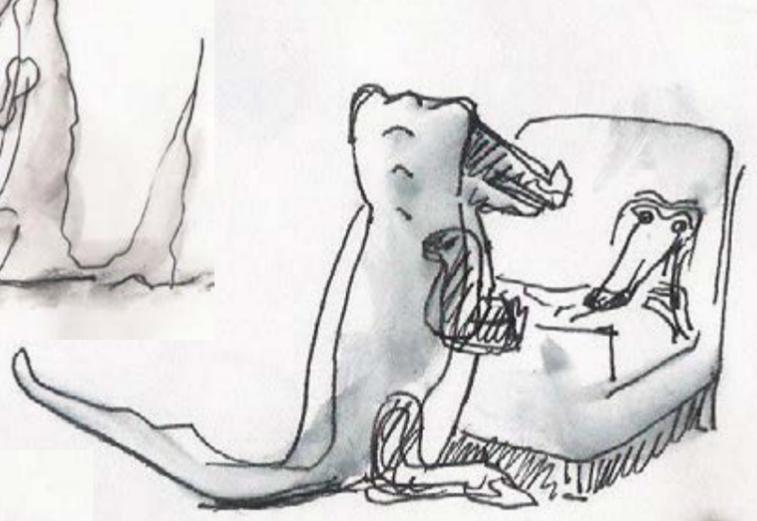


"Now my life is going to be different."

"Kroko, my friend. This is terrible news that Suzy left you. I have a story to tell you..."

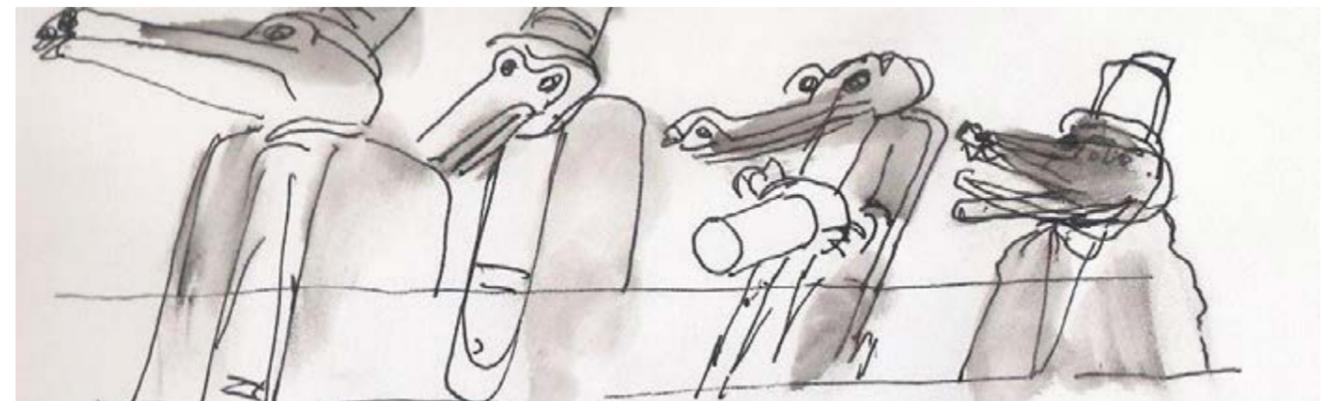


...Your wife and I. It was love at first sight. Monaco, the balcony of the Grand Hotel.



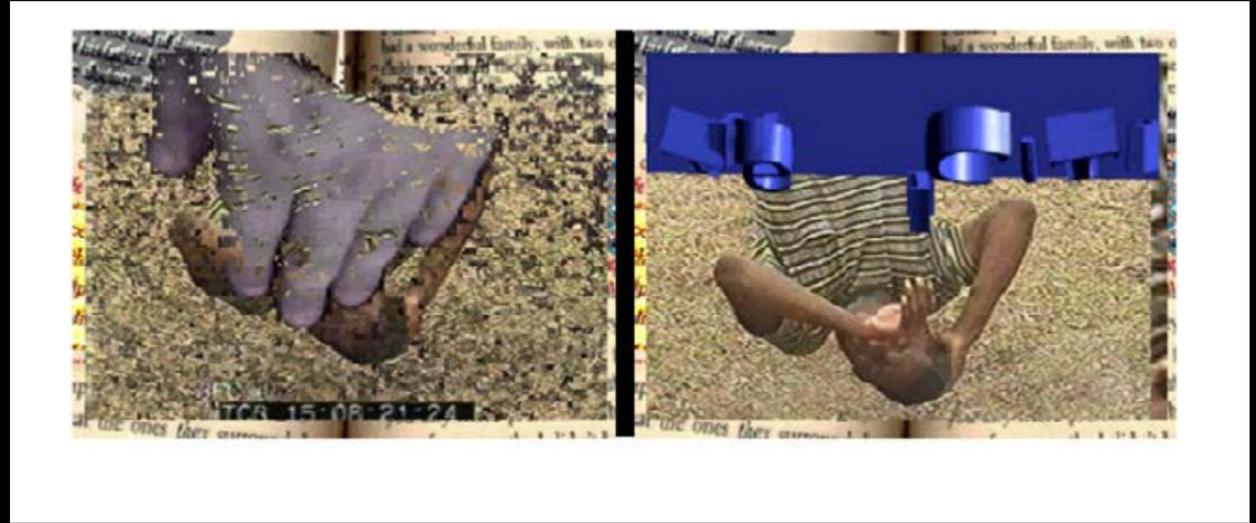
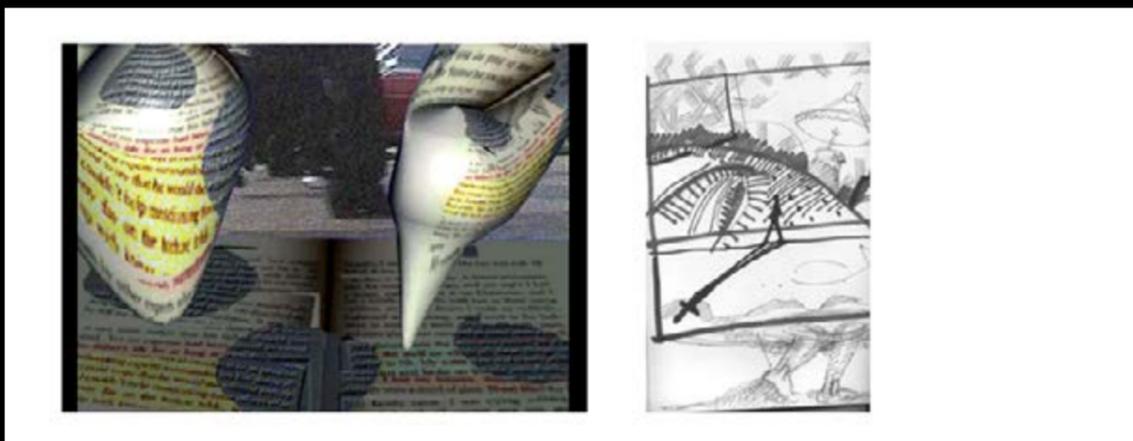
That's ok. I forgive you. Both of us will miss little Suzy.

Poor Kroko, I am never going to tell him that I meet Suzy tonight in Monaco..

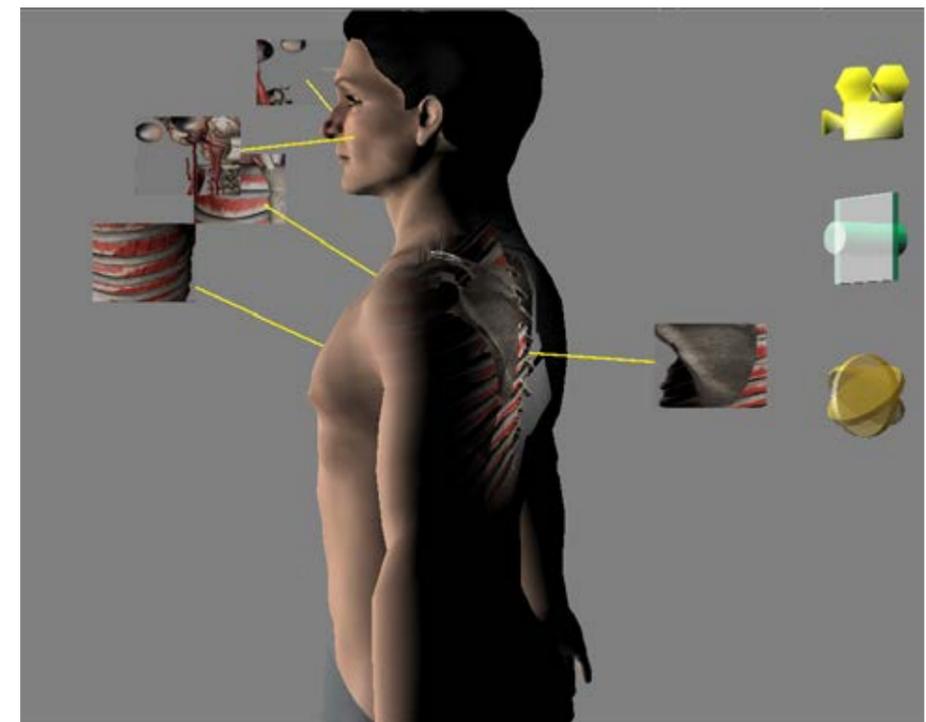
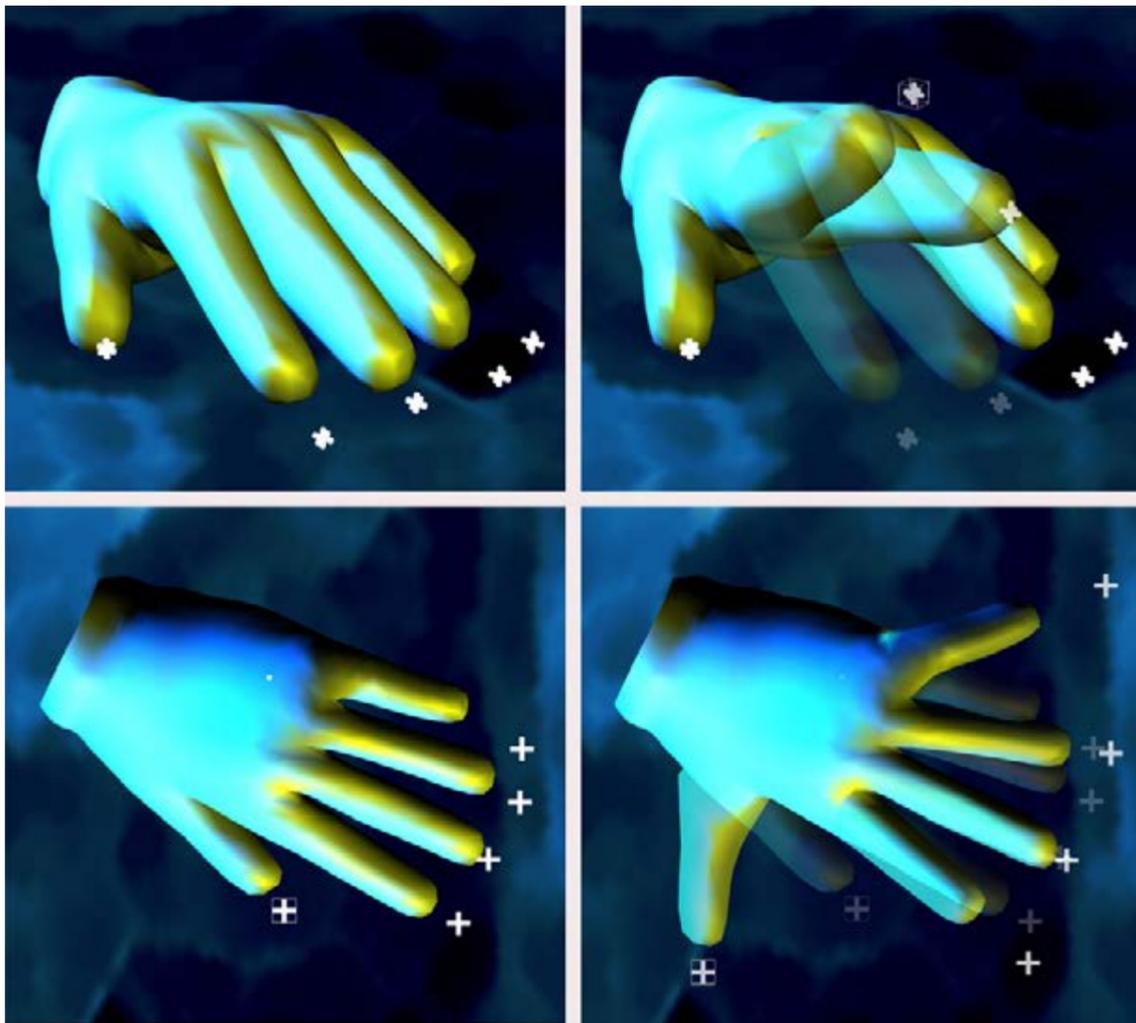
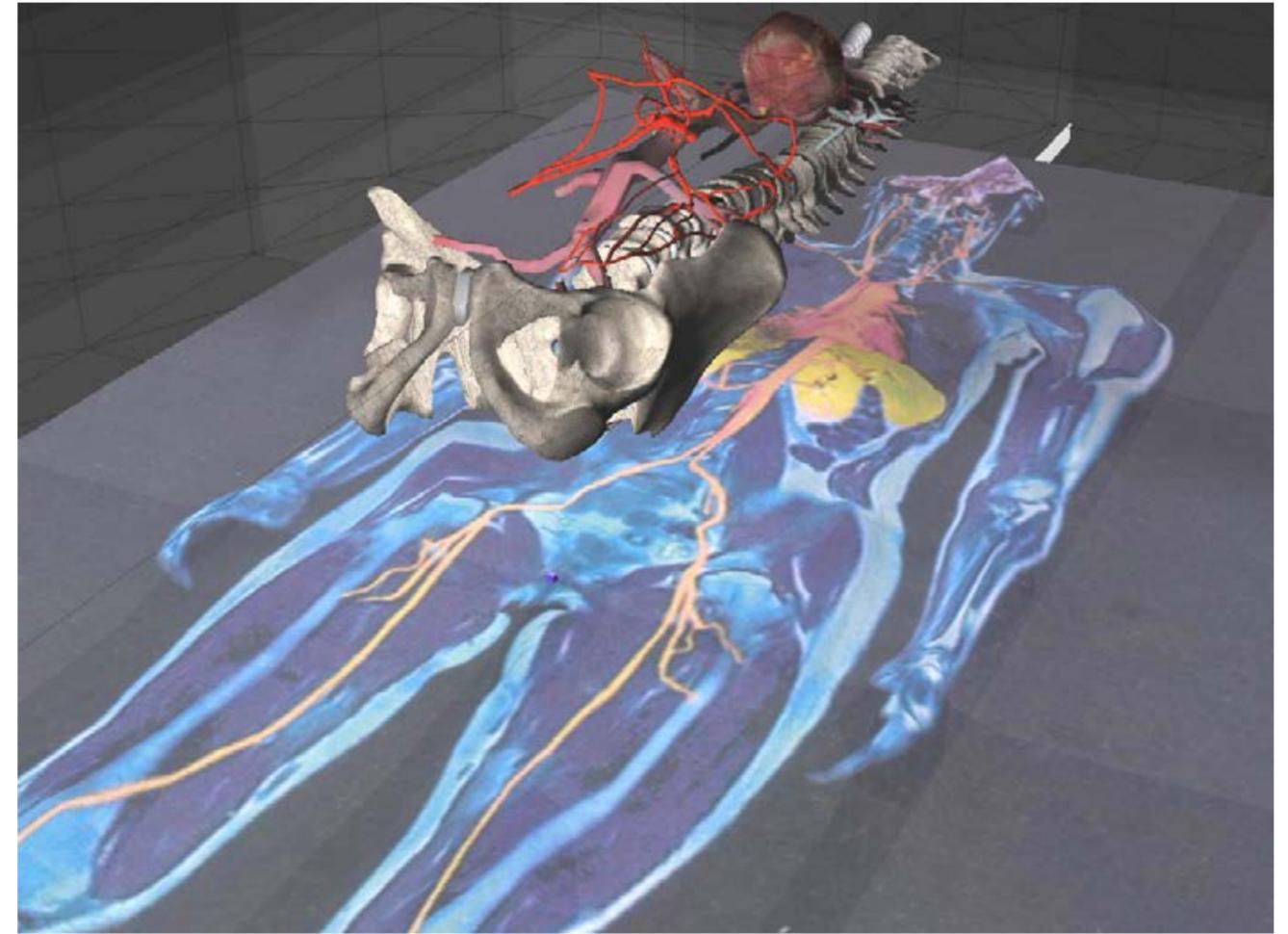
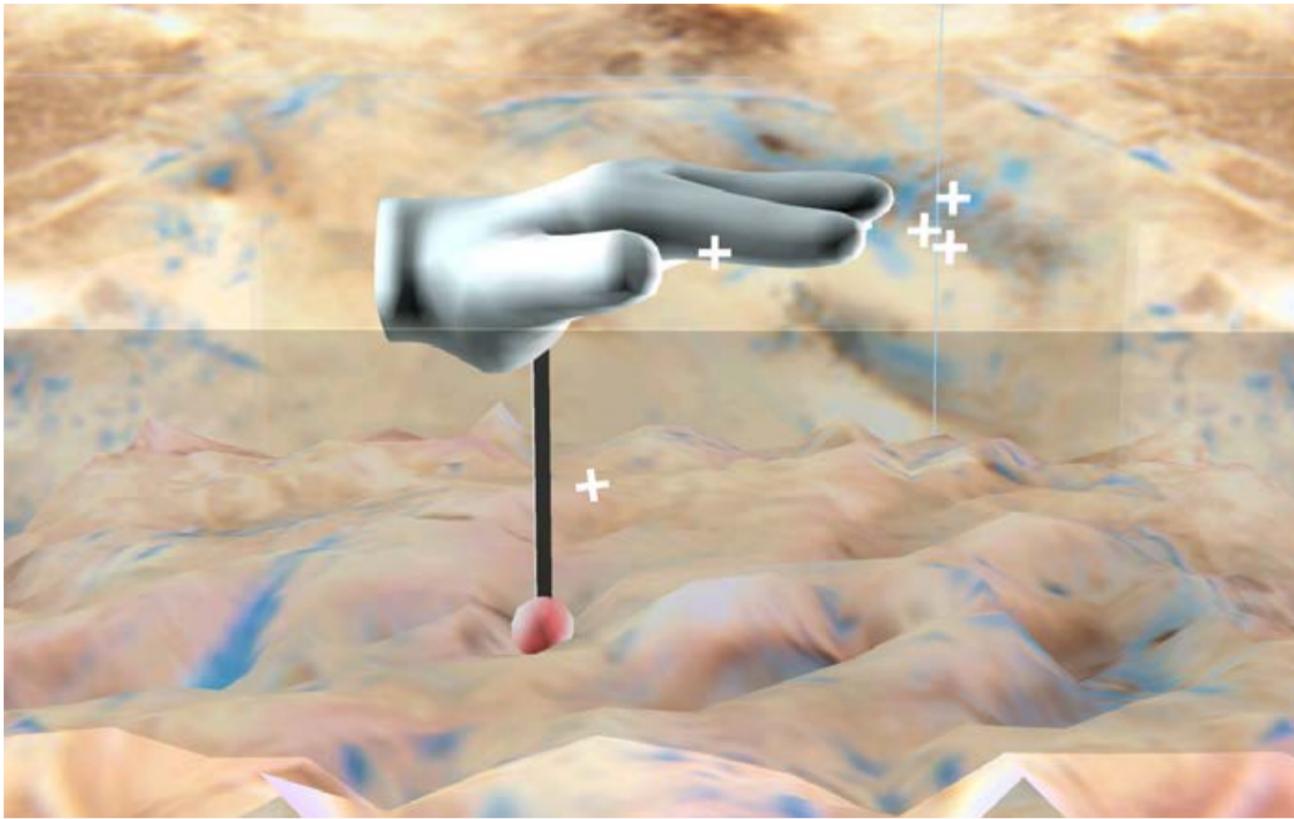


The Krokos
Character Design
Ink pen

The Krokos
Character Design
Ink pen



Gicle prints for an exhibition
 New York City, 1997
 IRIS prints, hand drawn sketches, color pencils, markers, frames from videos



Illustrations for a book about virtual spaces.

Medical illustrations and interactive animations
NYU School of Medicine

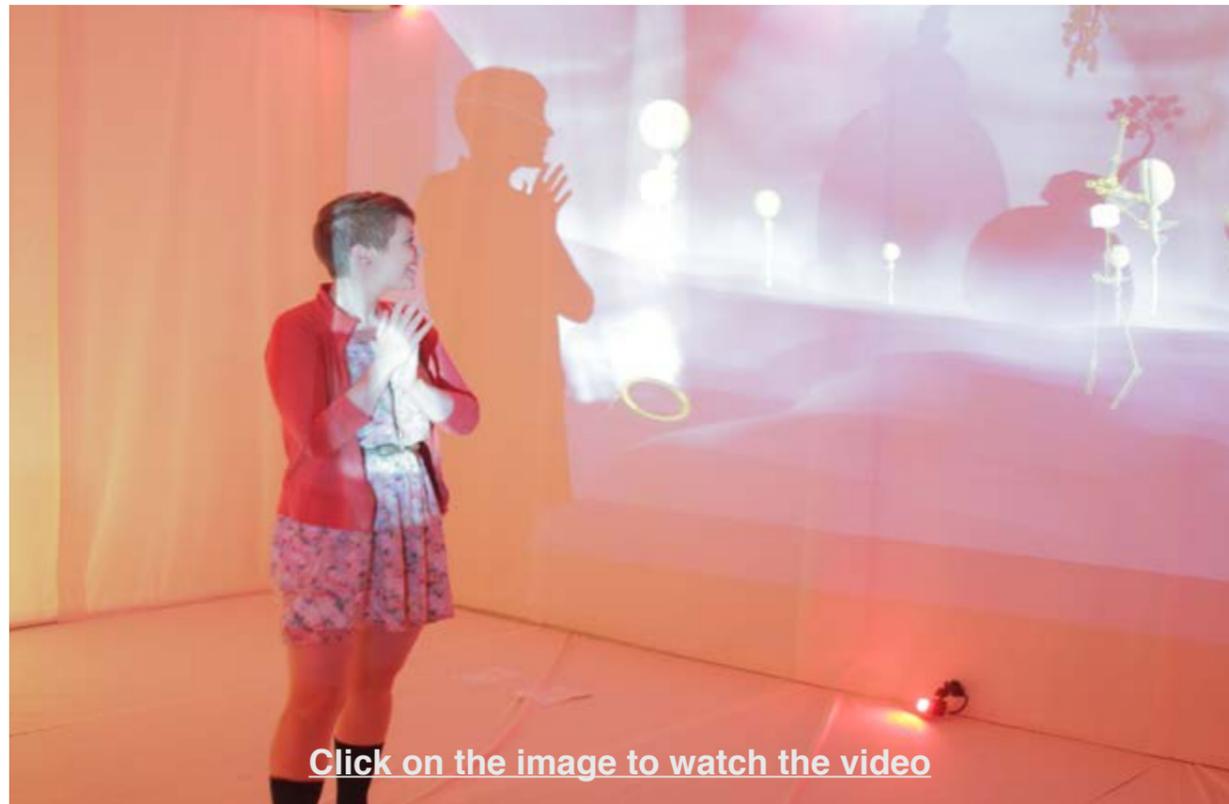


Recapturing Life Class Instructors Jean-Marc Gauthier and Chris Bregler

Organic Motion has a markerless mocap system that offers a lot of flexibility. It captures the movements of the viewer walking freely inside of a 3D volume. This system is compatible with video projections on screens.



Design of a motion capture pod using a markerless system with Organic Motion technology. Sony Wonder, New York, USA



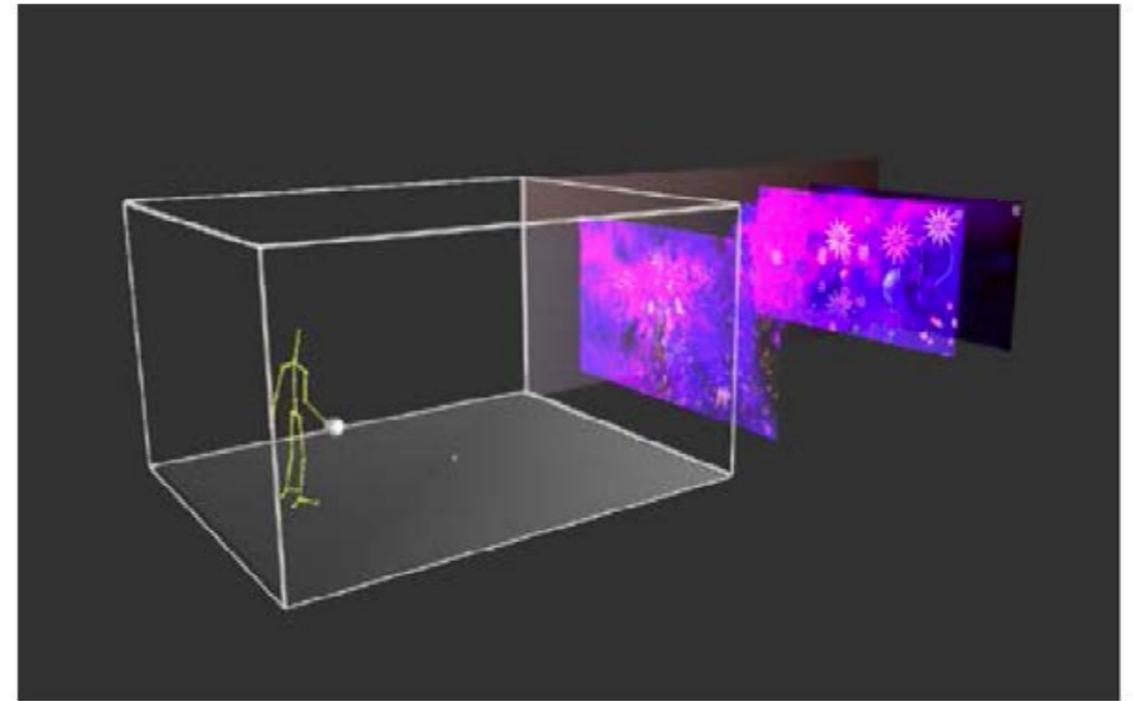
[Click on the image to watch the video](#)

Design and setup of a Motion Capture Lab markerless system using Organic Motion technology.
ANDA, Tisch School of the Arts Asia, New York University, Singapore

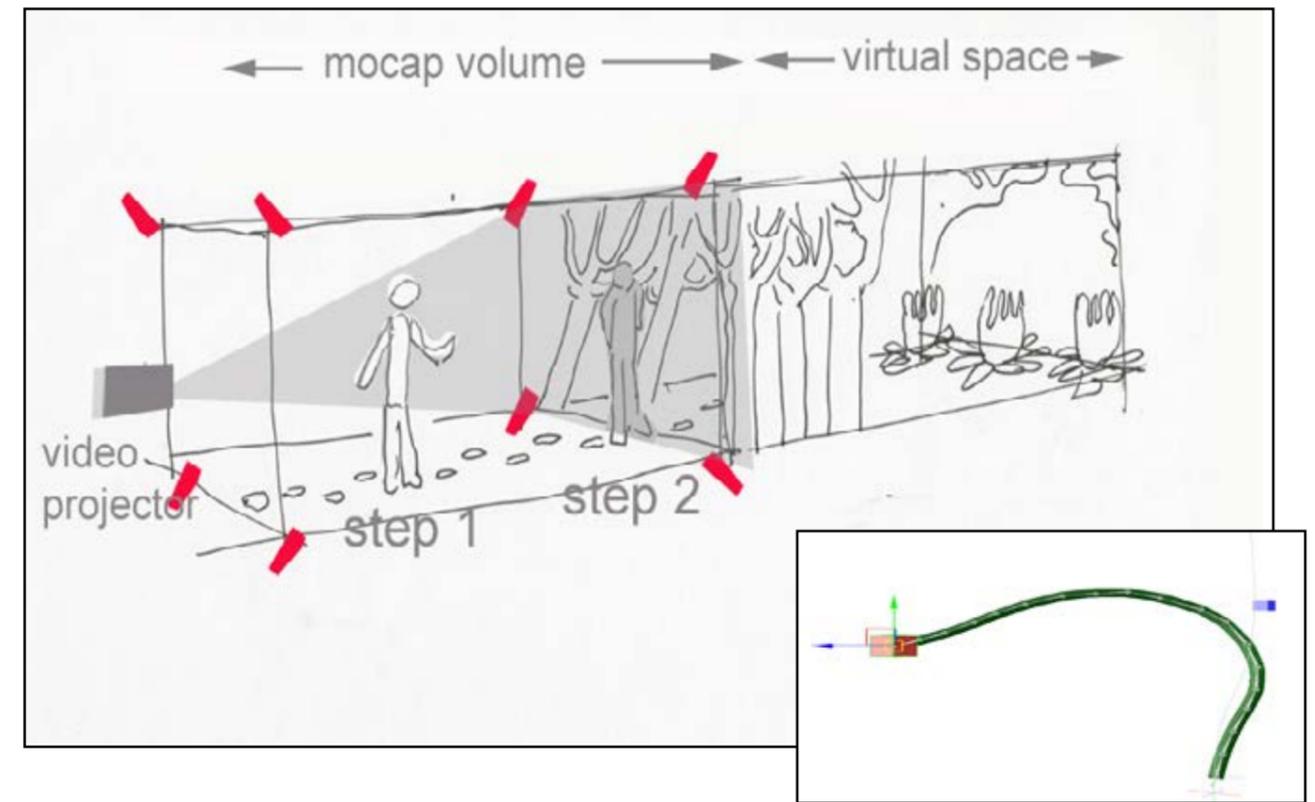
See a project using Organic Motion at
<http://www.tinkering.net/portfolio2013/siggraph2010.pdf>
[Watch video at http://vimeo.com/60890086](http://vimeo.com/60890086)



Virtual Garden Jean-Marc Gauthier
 installation at ArtScience Museum, Marina Bay Sands, Singapore 2013



Based on the concept of the 3D storyboard, I created this example of one-on-one interaction between a viewer and a virtual world projected on the screen. Using motion capture, the actor holds a sphere that tracks the right hand. This technique is useful in expressing the interaction and the 'look and feel' of touching virtual objects.



Artistic and technical details of the **Virtual Garden** (Kinect) installation at ArtScience Museum, Marina Bay Sands, Singapore, 2013

Motion capture performance allows animators to create scenes from a story. Animators can map a three-dimensional scene of a story inside the motion capture volume. This offers the possibility for the study of the interactions between actors, animated characters and the elements of a scene.

[Read about "Virtual Flowers" an interactive installation using Kinect](http://www.tinkering.net/portfolio2014/flower.pdf)
<http://www.tinkering.net/portfolio2014/flower.pdf>



Virtual Garden

interactive installation, ArtScience Museum, Marina Bay, Singapore



Crayons

interactive installation, Affordable Art Fair, Singapore



Nighthawks

Urban 3D game installation, Festival 1ier Contact, Issy, France

[Link to the website.](#)

What they wrote:

Noa Steimatsky, Phd,

Associate Professor of the History of Art and Film Studies, Yale University

“He understands better than many theoreticians, I think, the imaginary dimensions of actual space and, at the same time, the practical implications and responsibilities of virtual space.”

“Jean-Marc’s analysis helped me ask myself some old questions in new ways: on optics and mental process which are so often used as metaphors for each other, on how cinema’s mode of articulation- camera, movement, framing, editing - informs us about viewing habits generally, and about how those may be subverted.”